Performance of epoxy-repaired concrete under thermal cycling

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Abstract: Concrete beams with simulated cracks were epoxy-injected, using three commercially available epoxy compounds. The repaired beams were then exposed to a heat-cool cyclic regime. These beams were tested in flexure, where the epoxy concrete interface was subjected to tensile stresses. In addition, concrete cylinders with embedded inclined cracks were repaired by the same epoxy compounds, exposed to similar heat-cool cyclic regime, and tested in compression, where the epoxy-concrete interface was subjected to combined compressive and shear stresses. Results obtained from these tests indicated that the alternate heating and cooling has a detrimental effect on the performance of bond between epoxy and concrete.